HUMAN BODY MASSAGING METHOD AND APPARATUS

By

Hakjin KIM

BACKGROUND OF THE INVENTION

The invention relates generally to a method and an apparatus for human body massaging. More particularly, the present invention relates to an improved method and apparatus capable of efficiently treating bodily malfunctions such as pains related to the backbone and muscles in vicinity of the backbone, blood circulation troubles, and gastrointestinal weakness, etc. by providing acupressure movement and heat treatment to relevant points of a human body.

Conventional bed or mat type massage devices provide basic reciprocating motions of massage bumps, which apply pressure on the body of a patient, along the body. The massage devices of prior art have a disadvantage that it cannot provide massaging that considers detailed curvatures of various patients. Each human being has a different height, weight and body surface curvature. However, massage devices of prior art provide a simple linear massage motion or modified by a simple jig that resembles the curve of a human backbone. Springs, cushions or links were used to

accommodate the deviations from the simple reciprocating massage motion. However, such means did not effectively provide therapeutic massage effect, or acupressure. Further, due to rough massaging motions of massage bumps, which do not accommodate precise human body shapes, pains were induced to the user of the massage devices.

Also, there are medically important points on the human body, on which heating and acupressure treatment should be concentrated. While the positions of the points and intensity of treatments are different from patient to patient, conventional massage devices did not provide customized massaging motion that is controllable to meet such requirements.

A massage method and a massage apparatus providing accurate massaging movement for effective massage and acupressure treatment have been in demand for a long time.

SUMMARY OF THE INVENTION

The present invention is contrived to overcome the conventional disadvantages. Accordingly, an object of the invention is to provide a method and an apparatus for massaging human body that can provide massaging motion adapted to different height and width of individual human bodies.

Another object is to provide a method and an apparatus for massaging human body that can provide three-dimensional massaging motions.

Still another object is to provide a method and an apparatus for massaging human body in which a user can adjust or customize details of massaging motions.

Still another object is to provide a method and an apparatus for massaging human body in which the body contour of a user is measured and memorized in order to provide most effectively customized massaging motion.

To achieve these and other objects, the invention provides a method for massaging the body of a patient, who is resting on a upper surface portion of a platform. The upper surface portion includes a first end and a second end. The method includes a step of moving a pressure applying member between the first end and the second end for a predetermined longitudinal stroke. The step of moving the pressure applying member includes moving the pressure applying member forward from the first end to the second end, moving the pressure applying member backward from the second end to the first end, and repeating the forward moving step and the backward moving step. The movement of the pressure applying member follows a predetermined height curve in a plane defined by a first axis that is parallel

to the upper surface portion and longitudinal to the platform and a second axis that is perpendicular to the first axis and to the upper surface portion. The first axis coordinate of the height curve is defined by a first function of time, and the second axis coordinate of the height curve is defined by a second function of the first axis coordinate.

The height curve follows the backside contour of the patient. The height curve may include a plurality of square curves or convex portions at predetermined first axis coordinates. Square waves or convex portions provide acupressure effects.

The square wave or convex portion of the pressure applying member movement may be repeated for a predetermined number of times.

The starting point of each of the square waves or the convex portions may be shifted for a predetermined distance along the first axis.

The height curve is divided into a plurality of discrete sections, and the pressure applying member applies pressure to the patient for selected discrete sections.

In the backward movement of the pressure applying member, the second axis coordinate of the height curve may have a constant value, which is sufficiently small so that

the pressure applying member does not apply pressure to the patient.

During the step of moving the pressure applying member, the movement of the pressure applying member in the second axis direction is stopped when the pressure applied by the pressure applying member reaches a massage pressure threshold. And the massage pressure threshold is adjustable.

Also, the reference point of the second axis coordinate of the height curve is adjustable whereby the pressure applied by the pressure applying member is adjustable.

The longitudinal stroke is adjustable for a different height of the patient, and the height curve is adjusted proportional to the adjusted longitudinal stroke.

The method further includes a step of measuring body contour before the step of moving the pressure applying member along the height curve. The measuring step includes measuring the second axis coordinate of the pressure applying member while the pressure applying member is moved along the first axis at a constant speed. During the measuring step, the pressure applying member is moved toward the patient in the direction of the second axis until the pressure applied on the patient by the pressure

applying member reaches a threshold. A curve formed by the measured second axis coordinates and the corresponding first axis coordinates is memorized. And in the moving step, the height curve includes the memorized curve. The patient can adjust the threshold in the measuring step.

The method further provides movement of width direction of the patient's body. During the step of moving the pressure applying member, the movement of the pressure applying member follows a predetermined width curve in a plane defined by the second axis and a third axis that is perpendicular to the first axis and the second axis. The third axis coordinate of the width curve is defined by a fourth function of the first axis coordinate.

The pressure applying member includes one or more movable massage bumps that protrude toward the patient, and the movement of the massage bumps follow the width curve. The pressure applying member may further include one or more fixed massage bumps. The movable massage bumps are wheels or spheres.

The width curve is a sine wave or has a shape of a two-dimensional coil. The maximum width of the width curve is adjustable.

The massage bumps are positioned symmetrical to the center of the pressure applying member, and the movement of

the massage bumps forms two width curves that are parallel to each other.

The movement of the massage bumps follow the same width curve. Alternatively, the width curves followed by two longitudinally adjacent massage bumps among the massage bumps are spaced by the distance between the two longitudinally adjacent massage bumps.

The body contour of the patient in the width direction is measured by measuring the second axis coordinate of the pressure applying member while the pressure applying member is moved along the third axis at a constant speed at a given first axis coordinate. The pressure applying member is moved toward the patient in the direction of the second axis until the pressure applied on the patient by the pressure applying member reaches a threshold. A curve formed by the measured second axis coordinates and the corresponding third axis coordinates is memorized.

The height curve and the width curve together form a massage surface which the pressure applying member follows.

The width curve basically follows the body contour of the patient.

For initial predetermined number of cycles of the forward and backward moving steps, the height curve is the curve following the backside contour of the patient, and

then the height curve includes acupressure sections. The acupressure sections include linear acupressure movement, or convex acupressure movement or both. The patient can add or remove acupressure sections along the first axis.

The invention also provides an apparatus for massaging the body of a patient, who is resting on a upper surface portion of a platform. The upper surface portion comprises a first end and a second end. The apparatus includes a pressure applying member that is movable between the first end and the second end for a predetermined longitudinal stroke along a first axis that is parallel to the upper surface portion and longitudinal to the platform and a second axis that is perpendicular to the first axis and to the upper surface portion, a first axis controller that controls movement of the pressure applying member along the first axis, and a second axis controller that controls movement of the pressure applying member along the second axis. The movement of the pressure applying member follows a predetermined height curve in a plane defined by the first axis and the second axis. The first axis coordinate of the height curve is defined by a first function of time, and the second axis coordinate of the height curve is defined by a second function of the first axis coordinate.

The apparatus further includes a microprocessor that

is connected to the first axis controller and the second axis controller. The microprocessor stores a plurality of height curves, and the first axis controller and the second axis controller control the movement of the pressure applying member following the height curve selected by the patient. A remote controller is connected to the microprocessor for use by the patient.

The first axis controller includes a first axis actuator and a first axis displacement sensor. The first axis actuator moves the pressure applying member along the first axis, and the first axis displacement sensor measures the displacement of the pressure applying member along the first axis. The second axis controller includes a second axis actuator and a second axis displacement sensor. The second axis actuator moves the pressure applying member along the second axis, and the second axis displacement sensor measures the displacement of the pressure applying member along the second axis.

The second axis controller further includes a pressure sensor, which measures the pressure applied to the patient by the pressure applying member.

The platform includes an upper platform and a lower platform. The upper platform supports the upper body of the patient, and the lower platform supports the lower body of

the patient. The upper platform may be inclined to make an angle with a horizontal surface, and the angle is adjustable.

The pressure applying member has a heating member, wherein the temperature of the heating member is controlled as a third function of the first axis coordinate in the moving step.

The apparatus further includes a third axis controller that controls movement of the pressure applying member along a third axis. The third axis is perpendicular to the first axis and the second axis. The movement of the pressure applying member follows a predetermined width curve in a plane defined by the second axis and the third axis. The third axis coordinate of the width curve is defined by a fifth function of the first axis coordinate.

The microprocessor is connected to the third axis controller. The microprocessor stores a plurality of width curves, and the first axis controller and the third axis controller control the movement of the pressure applying member following the width curve selected by the patient.

The third axis controller includes a third axis actuator and a third axis displacement sensor. The third axis actuator moves the pressure applying member along the third axis, and the third axis displacement sensor measures

the displacement of the pressure applying member along the third axis.

The third axis controller further comprises a temperature sensor, wherein the temperature sensor measures the temperature of the pressure applying member.

The body contour of the patient in the width direction is measured by measuring the second axis coordinate of the pressure applying member while the pressure applying member is moved along the third axis at a constant speed at a given first axis coordinate. The pressure applying member is moved toward the patient in the direction of the second axis until the pressure applied on the patient by the pressure applying member reaches a threshold. A curve formed by the measured second axis coordinates and the corresponding third axis coordinates is memorized in the microprocessor.

The heat and massage treatment apparatus of the present invention provides automated and controlled cautery and acupressure treatment. The cautery treatment provides heat to the human body. The acupressure treatment provides massaging or regulated pressure to the human body. The treatments are concentrated on energy points and energy paths of the human body.

In the orienatal medical therapy, the energy points

(Kyunhyul) and the energy paths (Kyungrak) are important portions of a human body that are related to proper functioning of the internal organs of a human being.

Advantages of the present inventions include that: (1) the method and apparatus of the present invention provides cautery and acupressure treatment for precise positions of the human body; (2) the present invention provides comfortable massage feeling to the user by customizating massaging movements for individual users; (3) the present invention maximizes massaging effect by three-dimensional massaging motion; (4) various pre-configured massaging motions are provided and the motions can be further refined by adapting them to the backside contour of the user and customizing detailed massaging motions for important portions of the user's body; (5) the present invention provides relaxation and energy flow enhancement to the energy points, energy paths and nerves connected to or distributed around the spine; (6) the present invention provides effective treatment in recovering crooked or protruded spines to their original shape, and recovering squeezed or worn cartilages; (7) the present invention provides effective treatment in removing excess fat and cholesterol that are deposited in blood vessels; (8) nerve cells are relaxed therby recovering and expediting

functions of internal organs connected to the nerve cells; and (9) the present invention provides continuous, economic and user-friendly cautery and acupressure treatment.

Although the present invention is briefly summarized, the full understanding of the invention can be obtained by the following drawings, detailed description and appended claims.

BRIEF DESCIPTION OF THE DRAWINGS

These and other features, aspects and advantages of the present invention will become better understood with reference to the accompanying drawings, wherein:

FIG. 1 is a schematic elevation view showing an apparatus for human body massaging with a patient lying thereon according to the first embodiment of the present invention;

FIG. 2 is a schematic elevation view showing an apparatus for human body massaging with a patient lying thereon according to the second embodiment of the present invention;

FIG. 3 is a view similar to FIG. 2 but shows that a massaging platform is inclined;

FIG. 4 is a schematic perspective view showing the three-dimensional motion of a pressure applying member in

the XYZ space;

FIG. 5 is a schematic plan view showing the width and length limits of the pressure applying member movement;

FIG. 6 is a plan view of the pressure applying member having four moving massage bumps;

FIG. 7 is a view similar to FIG. 6 but showing that the massage bumps are moved up to the width limit;

FIG. 8 is a plan view of the pressure applying member having four moving massage bumps and two stationary center massage bumps;

FIG. 9 is a view similar to FIG. 8 but showing that the moving massage bumps are moved up to the width limit;

FIG. 10 is a side elevation view of the pressure applying member;

FIG. 11 is a graph showing a curve that indicates the movement of the pressure applying member in XY plane, and the curve follows the backside contour of a human body;

FIG. 12 is a graph showing a curve that indicates the movement of the pressure applying member in XY plane, and the curve includes square acupressure operations;

FIG. 13 is a graph showing a curve that indicates the movement of the pressure applying member in XY plane, and the curve includes convex acupressure operations;

FIG. 14 is a graph showing a curve that indicates the

movement of the pressure applying member in XY plane, and the curve follows the backside contour of a human body and includes square acupressure operations;

FIG. 15 is a graph showing a curve that indicates the movement of the pressure applying member in XY plane, and the curve follows the backside contour of a human body and includes convex acupressure operations;

FIG. 16 is a graph showing a curve that indicates the movement of the pressure applying member in XY plane, and the curve follows the backside contour of a human body and includes square and convex acupressure operations;

FIG. 17 is a graph showing a curve that indicates the movement of the pressure applying member in XY plane, and the curve is divided into a plurality of sections, and acupressure operations are limited to specific sections;

FIG. 18 is a graph showing a curve that indicates temperature variation of the pressure applying member along the X axis;

FIG. 19 is a graph showing a curve that indicates the movement of the massage bumps of the pressure applying member in XZ plane, and that the curve is a sine wave, and that two massage bumps follow the same curve;

FIG. 20 is a graph showing two curves that indicate the movement of the massage bumps of the pressure applying

member in XZ plane, and the curves are sine waves that are parallel to each other;

FIG. 21 is a graph showing a curve that indicates the movement of the massage bumps of the pressure applying member in XZ plane, and the curve has a shape of a two-dimensional coil;

FIG. 22 is a graph showing two curves that indicate the movement of the massage bumps of the pressure applying member in XZ plane, and the curves have a shape of a two-dimensional coil and are parallel to each other;

FIG. 23 is a graph showing a curve that indicates the movement of the massage bumps of the pressure applying member in XYZ space;

FIG. 24 is a graph showing two curves that indicate the movement of the massage bumps of the pressure applying member in XZ plane, and that movement of one of the massage bumps forms a first sine wave and movement of the other of the massage bumps forms a second sine wave that is spaced from the first sine wave by the distance between the two massage bumps;

FIG. 25 is a graph showing four curves that indicate the movement of the massage bumps of the pressure applying member in XZ plane, and that movement of two massage bumps in one side forms two coils that are spaced from each other

by the distance between the two massage bumps, and that movement of two massage bumps in the other side also forms two similar coils;

FIG. 26 is a graph showing a curve that indicates the movement of the massage bumps of the pressure applying member in YZ plane, and the curve follows backside contour of a patient;

FIG. 27 is a graph showing a curve that indicates the movement of the pressure applying member in XY plane, and the curve shows that a square acupressure operation may be shifted by a predetermined amount, and a convex square acupressure operation may be shifted by a predetermined amount;

FIG. 28 is a schematic block diagram showing the components of the apparatus for human body massaging;

FIG. 29 is a perspective view showing an embodiment of the apparatus; and

FIG. 30 is a flow chart showing the method for human body massaging.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows an apparatus **10** for massaging a human body. A patient rests on an upper surface portion **12** of a platform **14**. The upper surface portion **12** includes a first

end **16** and a second end **18**. The apparatus **10** includes a pressure applying member **20** that is movable between the first end **16** and the second end **18** for a predetermined longitudinal stroke **l** (refer to FIG. 5) along a first axis **X** that is parallel to the upper surface portion **12** and longitudinal to the platform **14** and a second axis **Y** that is perpendicular to the first axis **X** and to the upper surface portion **12**(refer to FIG. 4). The pressure applying member **20** contacts backside of the patient and applies pressure to the patient.

FIG. 2 shows that the platform **14** includes an upper platform **56** and a lower platform **58**. The upper platform **56** supports the upper body of the patient, and the lower platform **58** supports the lower body of the patient.

FIG. 3 shows that the upper platform **56** makes an angle α with a horizontal surface. The angle α is adjustable by the patient so that the upper platform **56** may be used like a back plate of a chair. FIG. 3 shows that the pressure applying member **20** is also provided in the lower platform **58**. FIG. 2 shows that a heating mat **60** instead of the pressure applying member **20** is provided in the lower platform **58**.

Referring to FIG. 28, the apparatus **10** further includes a first axis controller **22** that controls movement

of the pressure applying member **20** along the first axis **X**, and a second axis controller **24** that controls movement of the pressure applying member **20** along the second axis **Y**.

The pressure applying member follows a predetermined height curve in the XY plane in FIG. 4. The first axis coordinate of the height curve is defined by a first function of time, and the second axis coordinate of the height curve is defined by a second function of the first axis coordinate. In this way, massaging motion by the pressure applying member **20** may be conveniently defined and controlled with the height curve.

Referring back to FIG. 28, the apparatus **10** further includes a microprocessor **26** that is connected to the first axis controller **22** and the second axis controller **24**. The microprocessor **26** stores a plurality of height curves, and the first axis controller **22** and the second axis controller **24** control the movement of the pressure applying member **20** following the height curve selected by the patient.

The first axis controller **22** includes a first axis actuator **28** and a first axis displacement sensor **30**. The first axis actuator **28** moves the pressure applying member **20** along the first axis **X**, and the first axis displacement sensor **30** measures the displacement of the pressure applying member **20** along the first axis **X**. The second axis

controller **24** includes a second axis actuator **32** and a second axis displacement sensor **34**. The second axis actuator **32** moves the pressure applying member **20** along the second axis **Y**, and the second axis displacement sensor **34** measures the displacement of the pressure applying member **20** along the second axis **Y**. The information provided by the displacement sensors **30**, **34** may be used to feedback control the movement of the pressure applying member **20** or to measure the displacement of the pressure applying member **20**.

The second axis controller **24** further includes a pressure sensor **36**. The pressure sensor **36** measures the pressure applied to the patient by the pressure applying member **20**.

During the movement of the pressure applying member **20**, the movement of the pressure applying member **20** in the second axis direction is stopped when the pressure applied by the pressure applying member **20** reaches a massage pressure threshold. The massage pressure threshold is adjustable so that massage intensity is controlled.

The body contour of the patient is measured by measuring the second axis coordinate of the pressure applying member **20** while the pressure applying member **20** is moved along the first axis **X** at a constant speed. The

pressure applying member **20** is moved toward the patient in the direction of the second axis **Y** until the pressure applied on the patient by the pressure applying member **20** reaches a threshold. A curve formed by the measured second axis coordinates and the corresponding first axis coordinates is memorized in the microprocessor **26**.

FIGS. 11 - 17 show various height curves. In FIG. 11, the height curves **38** and **40** follow the backside contour of the patient. The height curve **38**, **40** start from 0 on the first axis **X**, and ends at the longitudinal stroke **1**. The height curves **38** and **40** have different starting points or reference points on the second axis **Y**. The reference point of the second axis **Y** coordinate of the height curve is adjustable whereby the pressure applied by the pressure applying member **20** is adjustable. The height curve following the body contour is effective in relieving or curing muscular pain after hard exercise, stressed blood vessels, and cold limbs due to retarded blood circulation, etc. Pre-configured height curves are initially stored in the microprocessor **26**.

In FIG. 12, the height curve includes a plurality of square curves **44** at predetermined first axis **X** coordinates. The movement of the pressure applying member **20** along each of the square curves **44** may be repeated for a predetermined

number of times. That is, acupressure operation by the square curve can be repeated for a certain points of the patient body. Also, as shown in FIG. 27, the starting point of each of the square waves may shift along the first axis **X** for a predetermined amount **s**. The height curve including the square waves together with heat treatment by the heater **62** are effective in detailed and localized massaging for the blood vessels, nerves, energy points and energy paths around the backbone. The height of the square wave is about 30 mm.

In FIG. 13, the height curve includes a plurality of convex portions **46** at predetermined first axis **X** coordinates. The movement of the pressure applying member **20** along each of the convex portions **46** may be repeated for a predetermined number of times. That is, acupressure operation by the convex portion can be repeated for a certain points of the patient body. Also, as shown in FIG. 27, the starting point of each of the convex portion may shift along the first axis **X** for a predetermined amount **s**. The height curve including convex portions provides soft and flexible movement of the backbone. The height of the convex portion is about 10 mm.

FIG. 14 shows that the curves shown in FIGS. 11 and 12 are combined. That is, the height curve **48** follows the body

contour and includes a plurality of square waves at predetermined first axis **X** coordinates.

FIG. 15 shows that the curves shown in FIGS. 11 and 13 are combined. That is, the height curve **50** follows the body contour and includes a plurality of convex portions at predetermined first axis **X** coordinates.

FIG. 16 shows that the curves shown in FIGS. 11 - 13 are combined. That is, the height curve **52** follows the body contour and includes a plurality of square curves and a plurality of convex portions at predetermined first axis **X** coordinates. The square curves and convex portions may be pre-configured or added or removed by the patient.

FIG. 17 shows that the height curve is divided into a plurality of discrete sections **54**, and the pressure applying member **20** applies pressure to the patient for selected discrete sections. The selected sections may be pre-configured. The patient also add or remove the sections. This sectioning facilitates manual adjustment of the height curves for a particular patient's need.

Referring back to FIG. 11, the second axis **Y** coordinate of the height curve **42** has a constant value. The constant value is sufficiently small so that the pressure applying member **20** does not apply pressure to the patient. This curve may be used when quickly returning the pressure

applying member **20** backward from the second end **18** to the first end **20** of the platform **14** so that massaging is done in one direction rather in both directions.

The longitudinal stroke **l** is adjustable for a different height of the patient. Then the height curve is adjusted proportional to the longitudinal stroke.

The pressure applying member **20** includes a heating member **62** as shown in FIG. 10. The temperature of the heating member **62** is controlled as a third function of the first axis X coordinate when the pressure applying member **20** is moved as shown in FIG. 18.

Referring back to FIG. 28, the apparatus **10** further includes a third axis controller **64** that controls movement of the pressure applying member **20** along the third axis **Z** in FIG. 4. The third axis **Z** is perpendicular to the first axis **X** and the second axis **Y**. The movement of the pressure applying member follows a predetermined width curve in XZ plane. The third axis **Z** coordinate of the width curve is defined by a fifth function of the first axis coordinate.

The microprocessor **26** is connected to the third axis controller **64**. The microprocessor **26** stores a plurality of width curves, and the first axis controller **22** and the third axis controller **64** control the movement of the pressure applying member **20** following the width curve

selected by the patient.

The third axis controller **64** includes a third axis actuator **66** and a third axis displacement sensor **68**. The third axis actuator **66** moves the pressure applying member **20** along the third axis **Z**, and the third axis displacement sensor **68** measures the displacement of the pressure applying member **20** along the third axis **Z**.

The third axis controller **64** further includes a temperature sensor **70**. The temperature sensor **70** measures the temperature of the pressure applying member **20**.

A remote controller **72** is connected to the microprocessor **26** so that the patient can adjust the height and width curves and other operations of the apparatus **10**.

FIGS. 19 - 25 show various width curves. In FIG. 19, the width curve is a sine wave. In FIG. 21, the width curve has a shape of a two-dimensional coil. FIG. 19 also shows that the maximum width of the width curve is the width **w** in FIG. 4. The width **w** is adjustable to accommodate varying widths of patient bodies.

The pressure applying member **20** includes one or more movable massage bumps that protrude toward the patient, and the movement of the massage bumps follow the predetermined width curve. In FIGS. 4 and 5, two movable massage bumps **74** are provided. In FIGS. 6 and 7, four movable massage bumps

76 are provided.

The pressure applying member **20** may further include one or more fixed massage bumps. In FIGS. 8 – 10, four movable massage bumps **78** and two fixed massage bumps **80** are provided. The movable massage bumps **78** are move in pairs, and the fixed massage bumps **80** are lower than the movable massage bumps **78** as shown in FIG. 10. The movable massage bumps **78** are positioned symmetrical to the center of the pressure applying member **20**, and the movement of the massage bumps **78** forms two width curves that are parallel to each other. FIG. 20 shows that the two width curves are sine waves, and FIG. 22 shows that the two width curves have a shape of a two-dimensional coil.

FIG. 19 shows that the movement of two massage bumps **74** follow the same width curve. Alternatively, as shown in FIGS. 24 and 25, the width curves followed by two longitudinally adjacent massage bumps are spaced by the distance between the two longitudinally adjacent massage bumps.

FIG. 29 shows an example of the massaging apparatus **10**. The first axis actuator **28** is movable longitudinally along the platform **14**, and the second axis actuator **32** move the massage bumps **82** up and down. The movable massage bumps **82** are wheels.

In FIG. 10, the movable massage bumps **78** are spheres. FIG. 23 shows that the height curve and the width curve form a massage surface which the pressure applying member **20** follows.

FIG. 26 shows that the width curve **84** follows the body contour of the patient.

The body contour of the patient is measured by measuring the second axis **Y** coordinate of the pressure applying member **20** while the pressure applying member **20** is moved along the third axis **Z** at a constant speed at a given first axis **X** coordinate. The pressure applying member **20** is moved toward the patient in the direction of the second axis **Y** until the pressure applied on the patient by the pressure applying member **20** reaches a threshold. A curve formed by the measured second axis **Y** coordinates and the corresponding third axis **Z** coordinates is memorized in the microprocessor **26**.

As shown in FIG. 30, a method for massaging the body of a patient according to the present invention starts with a step **S10** of asking the patient or the user whether to form a new curve.

If the answer is yes in step **S10**, the process goes to step **S12**, in which the body contour of the patient is measured. Then the process goes to step **S14**, in which the

user can customize the measured curve. Then the process goes to step **S16**, in which the customized curve is memorized in the microprocessor **26**. That is, the customized curve is added to the existing curves stored in the microprocessor **26**. Then the process goes to step **S18**, in which the user is asked to select a massaging curve.

If the answer is no in step **S10**, the process goes directly to step **S18**.

When a massaging curve is selected in step **S18**, the process goes to step **S20**, in which the pressure applying member **20** is moved along the longitudinal stroke. Specifically, the step **S20** includes moving the pressure applying member **20** forward from the first end **16** to the second end **18**, moving the pressure applying member **20** backward from the second end **18** to the first end **16**, and repeating the forward moving step and the backward moving step.

Then in step **S22**, the user is asked whether to customize the massaging curve performed in step **S20**, and if the answer is yes, the curve is customized by the user in step **S24**, and stored in the microprocessor **26**.

During step **S22**, the movement of the pressure applying member **20** in the second axis **Y** direction is stopped when the pressure applied by the pressure applying member **20**

reaches a massage pressure threshold. The massage pressure threshold is adjustable by the user. In this way, excess displacement of the pressure applying member, which might cause pain to the user, is prevented, and the user can adjust the intensity of massaging.

In step **S12**, the second axis **Y** coordinate of the pressure applying member **20** is measured while the pressure applying member **20** is moved along the first axis **X** at a constant speed. The pressure applying member is moved toward the patient in the direction of the second axis **Y** until the pressure applied on the patient by the pressure applying member reaches a threshold. The patient can adjust the threshold.

In step **S16**, the curve formed by the measured second axis **Y** coordinates and the corresponding first axis **X** coordinates is memorized.

In step **S18**, the curve includes the memorized curve in step **S16**.

The temperature of the pressure applying member is controlled as a third function of the first axis coordinate in step **S20**.

A massage therapy cycle consists of a plurality of height curves. Initially, the height curve is the curve following the backside contour of the patient for a few

curves of the forward and backward moving steps, and then the height curve includes acupressure sections. The acupressure sections include linear acupressure movement, or convex acupressure movement or both. The patient can add or remove acupressure sections along the first axis X in step **S24**.

Although the invention has been described in considerable detail, other versions are possible by converting the aforementioned construction. Therefore, the scope of the invention shall not be limited by the specification specified above.